U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

IN COOPERATION WITH THE
FORT BEND SUBSIDENCE DISTRICT

OPEN-FILE REPORT 00–093

Approximate water-level altitudes, Chicot aquifer, January–February 2000—SHEET 1 OF 6

Coplin, L.S., and Santos, H.X., 2000, Water-level altitudes 2000 and water-level changes 1990–2000 and 1999–2000 in the Chicot and Evangeline aquifers, Fort Bend County and adjacent areas, Texas

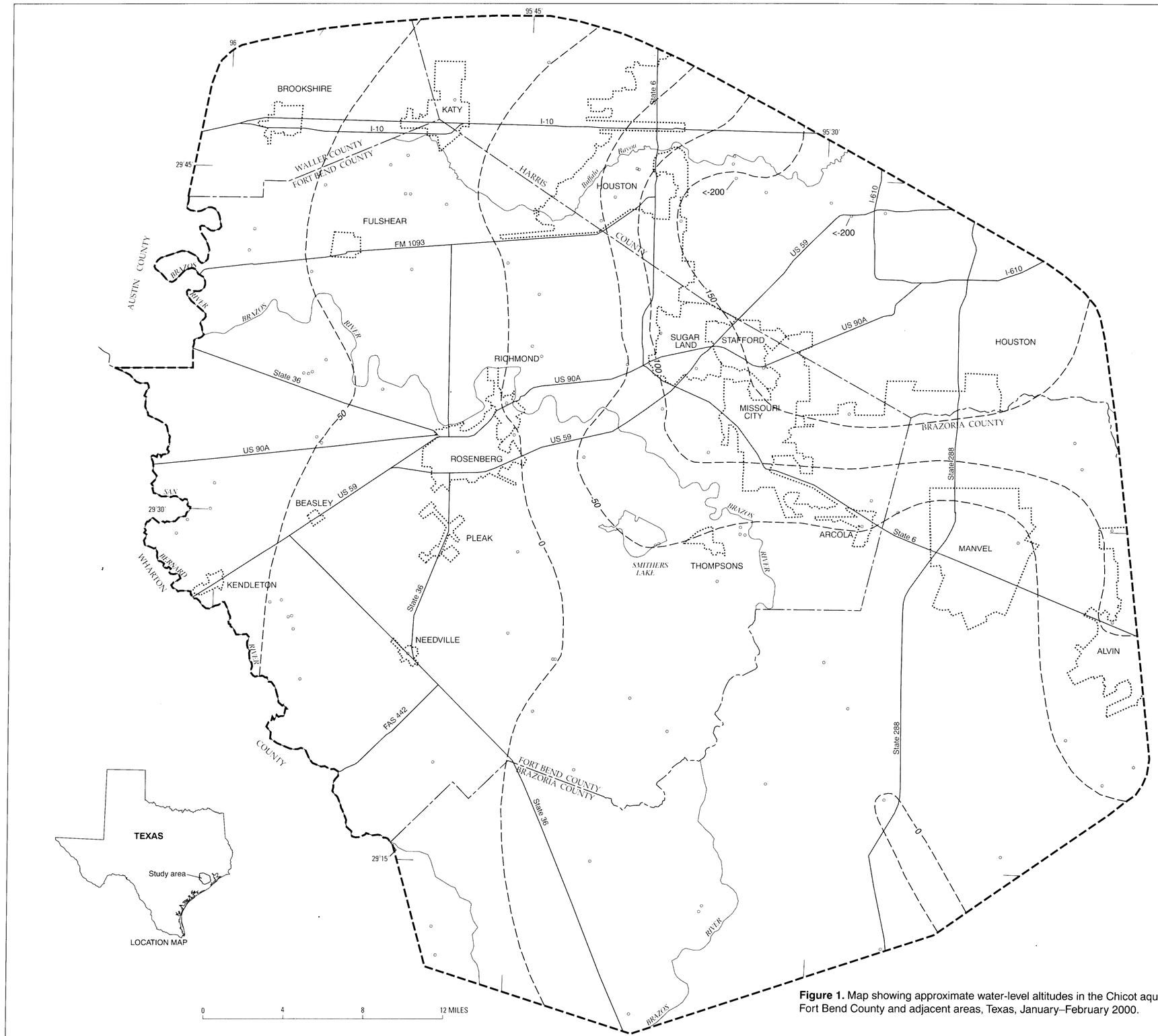

Figure 1. Map showing approximate water-level altitudes in the Chicot aquifer, Fort Bend County and adjacent areas, Texas, January–February 2000.

INTRODUCTION

This report is one in an annual series of reports that depicts water-level altitudes and water-level changes since 1990 in the Chicot and Evangeline aquifers in Fort Bend County and adjacent areas, Texas. The report, prepared in cooperation with the Fort Bend Subsidence District, presents maps for the Chicot and Evangeline aquifers showing the approximate water-level altitudes in wells in 2000 (figs. 1, 4) and approximate water-level changes in wells from 1990 to 2000 and from 1999 to 2000 (figs. 2, 3, 5, 6). The most recent previously published water-level-altitude maps and water-level-change maps for the two aquifers are by Coplin and others (1999). The earliest water-level-altitude maps and water-level-change maps for the Chicot aquifer are by Wesselman (1972). The first maps of water-level altitudes and water-level changes for the Chicot and Evangeline aquifers are by Locke (1990).

GEOHYDROLOGY

The Chicot aquifer comprises sediments of Holocene and Pleistocene age, and the underlying Evangeline aquifer comprises sediments of Pliocene and Miocene age. The sediments are discontinuous fluvial-deltaic deposits of sand, silt, and clay that thicken to the southeast (Wesselman, 1972). The Chicot aquifer is differentiated from the geologically similar Evangeline aquifer on the basis of hydraulic conductivity (Carr and others, 1985, p. 10). A weak hydraulic connection between land surface and the Chicot aquifer and between the Chicot and Evangeline aquifers allows vertical movement of water into and between the aquifers; the aquifer system thus is characterized as "leaky" (Gabrysch and Coplin, 1990, p. 2).

WATER-LEVEL MEASUREMENTS

Water-level measurements used to prepare this report were obtained by steel tape, airline, electronic sensor, and from reports by well operators. Most wells are pumped once daily, but some are pumped more frequently. Multiple measurements were made when wells were not being pumped. However, antecedent pumping conditions were not always known. Water-level measurements were made in January and February, the months when water levels usually are highest. The wells selected for water-level measurements had comparable depths and screened intervals. Some water-level measurements from wells outside the study area are obtained to increase water-level-contour control.

REFERENCES CITED

Carr, J.E., Meyer, W.R., Sandeen, W.M., and McLane, I.R., 1985, Digital models for simulation of ground-water hydrology of the Chicot and Evangeline aquifers along the Gulf Coast of Texas: Texas Department of Water Resources Report 289, 101 p.

Coplin, L.S., Santos, H.X., and Brown, D.W., 1999, Water-level altitudes 1999 and water-level changes 1990–99 and 1998–99 in the Chicot and Evangeline aquifers, Fort Bend County and adjacent areas, Texas: U.S. Geological Survey Open-File Report 99–177, 6 sheets.

Gabrysch, R.K., and Coplin, L.S., 1990, Land-surface subsidence resulting from ground-water withdrawals in the Houston-Galveston region, Texas, through 1987: Harris-Galveston Coastal Subsidence District Report of Investigations 90–01, 53 p.

Kasmarek, M.C., 1997, Water-level altitudes in wells completed in the Chicot and Evangeline aquifers, Fort Bend County and adjacent areas, Texas, January–February 1990: U.S. Geological Survey Open-File Report 97–784, 2 sheets.

Locke, G.L., 1990, Ground-water withdrawals, water-level changes, land-surface subsidence, and ground-water quality in Fort Bend County, Texas, 1969–87: U.S. Geological Survey Water-Resources Investigations Report 90–4012, 155 p.

Wesselman, J.B., 1972, Ground-water resources of Fort Bend County, Texas: Texas Water Development Board Report 155, 185 p.

VERTICAL DATUM

Sea level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929.

EXPLANATION

-50 — **Water-level contour**—Shows altitude at which water level would have stood in tightly cased well. Contour interval 50 feet. Datum is sea level

Boundary of study area

Well used for control—Well in which water-level measurement was made. One point can represent more than one well

< indicates less than

Base from U.S. Geological Survey digital data, 1:100,000
Universal Transverse Mercator projection
Zone 15

WATER-LEVEL ALTITUDES 2000 AND WATER-LEVEL CHANGES 1990–2000 AND 1999–2000 IN THE CHICOT AND EVANGELINE AQUIFERS, FORT BEND COUNTY AND ADJACENT AREAS, TEXAS

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2000

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